



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/565,800

01/25/2006

Peter Boehland

R.305602

9644

2119 7590 08/11/2008
RONALD E. GREIGG
GREIGG & GREIGG P.L.L.C.
1423 POWHATAN STREET, UNIT ONE
ALEXANDRIA, VA 22314

EXAMINER

CERNOCH, STEVEN MICHAEL

ART UNIT

PAPER NUMBER

3752

MAIL DATE

DELIVERY MODE

08/11/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/565,800	Applicant(s) BOEHLAND ET AL.	
	Examiner STEVEN CERNOCH	Art Unit 3752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) 1-8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/25/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 3752

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 9-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ricco et al. (US Pub No 2002/0125344) in view of Baker et al. (US Pub No 2002/0070295).

Art Unit: 3752

Re claim 9, Ricco et al. shows a fuel injection device (Fig. 1, 1) for an internal combustion engine, comprising a housing (2) and a first valve element (5) and at least one second valve element (8), said first and said at least one second valve elements each being associated with a separate hydraulic control chamber (9 and 15) which control chambers are capable of being connected to a shared high-pressure connection and which are at least partially delimited by a respective hydraulic control surface a fluid connection (19) between the control chambers, and a valve device (6) in the fluid connection that is able to disconnect the fluid connection.

Ricco et al. does not teach a first hydraulic control surface acting in the closing direction and a second hydraulic control surface acting in the closing direction.

However, Baker et al. does teach a first hydraulic control surface acting in the closing direction (Fig. 9, located in between items 504 and 516) and a second hydraulic control surface acting in the closing direction (516a).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the valve elements of Ricco et al. with the control surfaces of Baker et al. to move the inner needle due to the influence of fuel pressure acting upon the control surface (paragraph 0142).

Re claim 10, Ricco et al. shows wherein said first and second valve elements are situated coaxially (Fig. 1, 3), wherein control chamber associated with the inner valve element and the fluid connection are situated in an end section of the outer valve element (15), and wherein the valve device has a pin-shaped, preferably conical valve

Art Unit: 3752

member on the inner valve element (nearest 15), which, in an open end position of the inner valve element, at least approximately closes the mouth of the fluid connection into the inner control chamber.

Re claim 11, Ricco et al. does not show wherein the hydraulic control surface of the inner valve element is conical as a whole and thus constitutes the valve member of the valve device.

However, Baker et al. does teach wherein the hydraulic control surface of the inner valve element is conical as a whole and thus constitutes the valve member of the valve device (Fig. 9, 516a).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the valve elements of Ricco et al. with the control surfaces of Baker et al. to move the inner needle due to the influence of fuel pressure acting upon the control surface (paragraph 0142).

Re claims 12 and 13, Ricco et al. shows wherein the end segment of the outer valve element comprises a separate cylindrical part containing a central, stepped through bore (Fig. 1, nearest 23).

Re claim 14, Ricco et al. shows wherein the fluid connection extends approximately in the radial direction (Fig. 1, 19) and the valve device has a valve edge on a valve element functioning as a slide valve (18), which, in an open end position of this valve element, at least approximately covers the mouth of the fluid connection.

Art Unit: 3752

Re claims 15-19, Ricco et al. shows wherein the fluid connection comprises a flow throttle (Fig. 1, 6).

Re claims 20-23, Ricco et al. shows wherein one valve element comprises a driving segment (Fig. 1, 14) that rests against the other valve element at least at the beginning of the closing process.

Re claims 24-28, Ricco et al. does not show wherein the control surfaces are dimensioned so that when the pressure in the control chamber associated with the outer valve element is increased further, before the inner valve element has moved into its open end position in which it closes the fluid connection, the inner valve element closes before the outer valve element and the hydraulic force, which acts on the effective control surface of the inner valve element when the valve device is closed and when the maximum pressure prevails in the control chamber associated with the outer valve element, is sufficient to move the inner valve element in the closing direction as soon as the outer valve element has reached its closed position.

However, Baker et al. does teach wherein the control surfaces are dimensioned so that when the pressure in the control chamber associated with the outer valve element is increased further, before the inner valve element has moved into its open end position in which it closes the fluid connection, the inner valve element closes before the outer valve element and the hydraulic force, which acts on the effective control surface of the inner valve element when the valve device is closed and when the maximum pressure prevails in the control chamber associated with the outer valve

Art Unit: 3752

element, is sufficient to move the inner valve element in the closing direction as soon as the outer valve element has reached its closed position (paragraphs 0021-0023).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the injector of Ricco et al. with the hydraulic forces of Baker et al. in order to allow the outer and inner valve elements to enter their respective open and closed positions (paragraph 0022).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEVEN CERNOCH whose telephone number is (571)270-3540. The examiner can normally be reached on IFP.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Len Tran can be reached on (571)272-1184. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3752

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/S. C./

Examiner, Art Unit 3752

/Len Tran/

Supervisory Patent Examiner, Art Unit 3752